Integrated High Speed Dome Camera

Outdoor Dome (811)

User’s Manual

00-3H8110ZSEA4

Preface

The information given in this manual was current when published. The company reserves the right to revise and improve its products. All specifications are subject to change without notice.

Notice

To work with the Integrated High Speed Dome Cameras, any installer or technician must have the following minimum qualifications:

- A basic knowledge of CCTV systems and components
- A basic knowledge of electrical wiring and low-voltage electrical hookups
- Have read this manual completely

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Important Information

Before proceeding, please read and observe all instructions and warnings in this manual. Retain this manual with the original bill of sale for future reference and, if necessary, warranty service. When unpacking your unit, check for missing or damaged items. If any item is missing, or if damage is evident, DO NOT INSTALL OR OPERATE THIS PRODUCT. Contact your dealer for assistance.

Regulation

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Cautions

- **Handle the camera carefully**
  Do not abuse the camera. Avoid striking, shaking, etc. The camera could be damaged by improper handing or storage.

- **Do not disassemble the camera**
  To prevent electric shock, do not remove screws or covers. There are no user serviceable parts inside. Ask a qualified service person for servicing.

- **Do not block cooling holes on the bracket**
  This camera has a cooling fan inside. Blocking the cooling holes leads to build up of heat the camera and may cause malfunction.

- **Do not operate the camera beyond the specified temperature, humidity or power source ratings**
  Use the camera under conditions where temperature is between -50°C ~ 50°C (-58°F ~ 122°F), and humidity is below 90%.

- **Do not use strong or abrasive detergents when cleaning the camera body**
  Use a dry cloth to clean the camera when dirty. In case the dirt is hard to remove, use a mild detergent and wipe gently.

- **Never face the camera towards the sun**
  Do not aim the camera at bright objects. Whether the camera is in use or not, never aim it at the sun or other extremely bright objects. Otherwise, the camera may be smeared or damaged.

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1. Overview

ZH811 is a new weather resistant integrated high speed dome camera designed to apply to both indoor and outdoor installations. ZH811 series dome cameras support one cabling for easy installation, and can be integrated with CCTV products, such as DVRs, Control Keyboards, and CCTV accessories for a total surveillance solution.

The Integrated High Speed Dome Camera provides five models of new generation advanced DSP color camera:

- U Model: 26× optical zoom multiply 12× digital magnifier
- K Model: 23× optical zoom multiply 12× digital magnifier
- R Model: 22× optical zoom multiply 12× digital magnifier
- F Model: 18× optical zoom multiply 12× digital magnifier
- E Model: 18× optical zoom multiply 12× digital magnifier

The dome delivers the power of 312x zoom to allow dome cameras capture clear image in the distance. Continuous Auto Focus, Back Light Compensation, Auto Exposure, Digital Slow Shutter functions are provided for clear and high quality image. IR cut filter removable ensures 24 hours operation; more Privacy Masks are specially designed to avoid any intrusive monitoring at specific region; Wide Dynamic Range function, are some of the salient features incorporated to fit your needs. The Home function allows user to specify a preset position as the 'home position' or functions (Sequence/Auto-pan/Cruise), dome camera can come back to home position or functions when the user stops to control the camera for a user defined period of time. Additionally, Scheduling function, the unique feature, enables users to program a preset point or function (Sequence/Auto-pan/Cruise) automatically actions in certain period of time.

The dome provides variable pan/tilt speeds ranging from a fast patrol of 400° per second to a slow ramble of 5° per second with 0.225° pan accuracy for fast and accurate tracking ability. The 360° endless rotation and -10°~190° tilt travel makes tracking the object passing directly beneath the dome. Maximum 256 preset points can be programmed for precise location of target areas, and you can also define 8 sequence, 4 auto-pan and 1 cruise routes for the camera to operate automatically. RS-485 communication port is available for remote control purposes.

The Integrated High Speed Dome Camera provides 8 alarm inputs and 2 alarm output, and the smart alarm management mechanism can be programmed through OSD setup menu; certain function (Preset/Sequence/Auto-Pan/Cruise) can be activated when an alarm is triggered.

Large set of built-in protocols provide connectivity to other surveillance systems. The built-in protocols include DynaColor, Pelco, VCL, Philips, AD-422 (Manchester), etc, which allow the Integrated High Speed Dome Camera series to be integrated with other suppliers' surveillance systems.

Dependability and ultra high reliability are key factors in the speed dome design cycle. Every speed dome is assembled with meticulous care and thorough testing at our ISO 9001 compliant factory. High performance, reliability, and reasonably pricing make this speed dome to be an ideal solution to your tough surveillance requirement.

1.1 Product Features

Precise and Accurate Tracking

- Auto Calibration
- Scheduling Functions
- Pan driver accuracy of 0.225°
- Preset speed up to 400°/sec.
- Pan & Tilt proportional to Zoom Ratio
- 256 Preset Position/8 Sequence /4 Auto-Pan /1 Cruise

Day/Night Features

- Removable IR Cut Filter (F, K, U Model)

Low-Light Applications

- Minimum illumination 0.01 Lux
- Digital Slow Shutter
- Electronic Shutter

Perfect Contrast Solution for High Image Quality

- Wide Dynamic Range (K Model)
- Auto White Balance
- Auto Gain Control
- Backlight Compensation
- Auto Iris Control

Multiple Built-in Protocols Enhanced High Compatibility

- DynaColor
- Pelco D & P
- VCL
- Philip
- AD/AD-422
- Chiper

Privacy Mask for Privacy Protection

- Up to 24 privacy zones of camera view programmable

Dynamic Dome Configuration

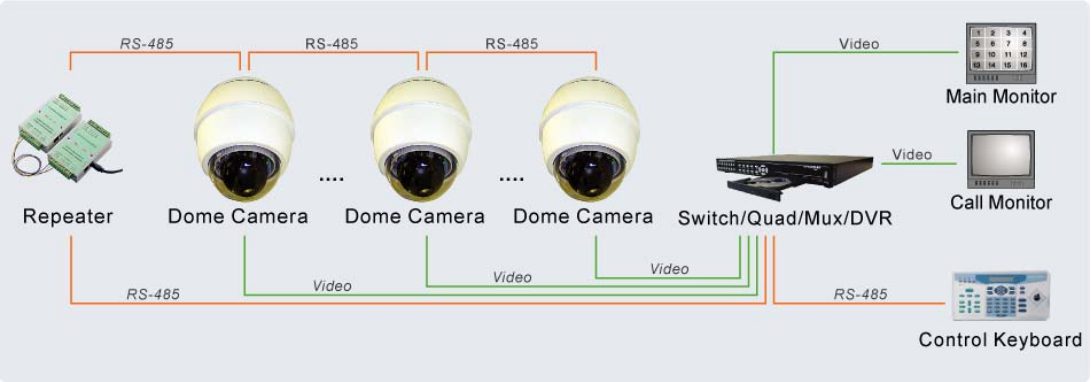
- Flexible In/Outdoor mountings
- Compact lightweight design for easy installation
- Weather resistant housing for temperature, sun ray, and rain

Integrated with Web, Enhanced Internet Capability (Optional)

- Remote monitoring operation/system configuration/software upgrade
- Include Window active applications

1.2 Product Application

Connect the dome camera to other devices as shown in the diagram to complete a video surveillance solution.



NOTE: To extend the network distance up to 1 km (4000 feet) and to protect the connected devices, it is highly recommended to place a repeater in the mid-point. Refer to the repeater user's manual for detailed information.

2. Connecting the High Speed Dome

Please refer to the following sections to connect, set and operate the dome camera. In order to control the integrated high speed dome, basically a control keyboard or other control device is required.

2.1 Package Content

Before proceeding, please check the box contains the items listed here. If any item is missing or has defects, DO NOT install or operate the product and contact your dealer for assistance.

Dome Body

50-cm Data Cable for power supply, video and telemetry

Lubricant

Screws

Optical Cover

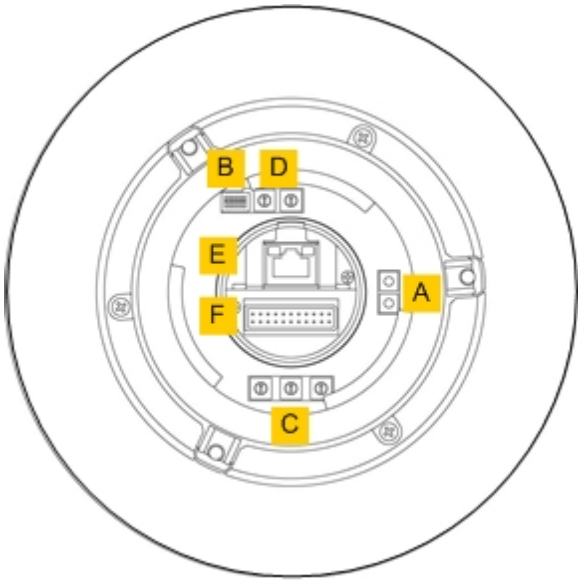
50-cm, 13-pin Alarm Cable

Water-proof rubber

User's Manual and Quick Guide

2.2 Switch Definition

First of all, configuring the dome ID and communication protocol is required before connecting the dome camera to other devices. The switches used for configuring these settings are located on the bottom of the dome camera.

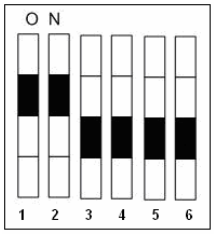


Outdoor Dome

A	Reserved
B	Communication Switch
C	Dome ID Switch
D	Dome Control Protocol Switch
E	RJ-45 Connector (for IP dome only)
F	22-Pin Connector

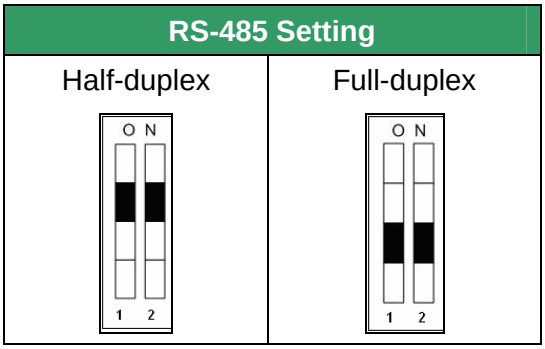
2.3 Communication Switch Setting

The table below shows the function of each pin within the Communication Switch.

Communication Switch		
	**Pin 1**	RS-485 Setting
	Pin 2	
	Pin 3	Termination
	Pin 4	Line Lock
	Pin 5	System Initialization (for upgrade)
	Pin 6	Reserved

RS-485 is the interface that communicates the dome camera and its control device; for this reason, the RS-485 setup of the dome and the control device must be the

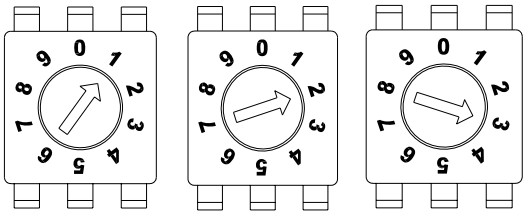
same. The RS-485 default setting is half-duplex (see the diagram as follows). Please do not change the default setting without qualified specialist or supplier's notice. As for the Pin 3 and Pin 4, they are used for termination and Line Lock adjustment respectively. The Pin 5 is mainly used after firmware upgrade.



2.4 Dome ID Setting

Use the switch to change your speed dome ID by turning the arrow to the desired number respectively. For instance, if the dome ID is 123, the ID switch should be set as below.

NOTE: No two domes should be given the same ID, or communication conflict may occur.



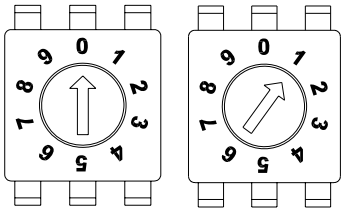
NOTE: The number "0" should locate upwards as shown in above diagram for correct switch definition.

2.5 Dome Control Protocol

Protocol is a specific set of rules, procedures used for data communications. Basing on the devices of your surveillance system and define the protocol you are going to use. Generally, use one protocol even the devices are provided from different manufacturers. Use the switch to set your dome control protocol and the baud rate. Refer to below table and turn the arrow to choose a protocol for your speed dome.

Switch No.	Protocol	Baud Rate
00	VCL	9600
01	Pelco D	2400
02	Pelco P	4800
04	Chiper	9600
05	Philips	9600
07	DSCP	9600
08	AD422	4800
09	DM P	9600
11	Pelco D	4800
12	Pelco D	9600
13	Pelco P	2400
14	Pelco P	9600
15	JVC	9600
16	GANZ	9600

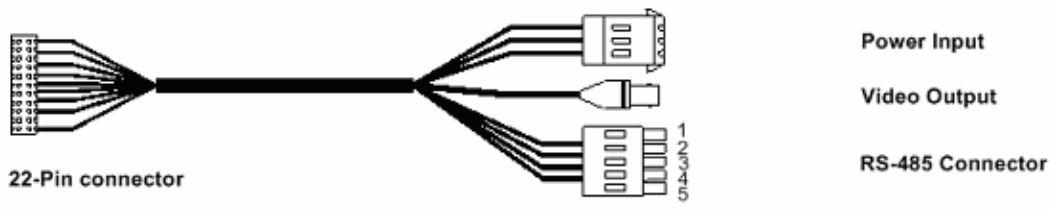
Select protocol: Pelco D, with switch no. 01 and baud rate 2400, for instance, the protocol switch should be set as below.

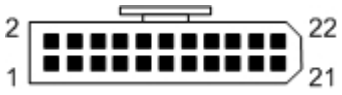


decimal single digit

2.6 22-Pin Connector Definition

A 50-cm data cable (shown as the figure below) is shipped with the integrated high speed dome for quick installation for demo or testing usage. Additionaly, the section will also provide the definition of each pin within the 22-pin connector on the data cable.



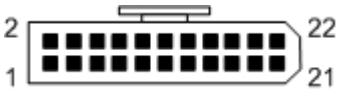


The 22-pin connector definition is listed as below.

No.	Pin	Cable
1	AC24-1	20AWG
2	Alarm Pin (Not wired)	
3	AC24-2	20AWG
4	Alarm Pin (Not wired)	
5	FG	20AWG
6	Alarm Pin (Not wired)	
7	T+	24AWG
8	R-	
9	T-	
10	R+	
11~20	Alarm Pin (Not wired)	
21	VGND	24AWG
22	Video	

2.7 Alarm Pin Definition

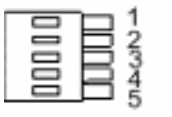
The alarm pins are serviceable for connecting alarm in- and output devices. Following lists the definition of alarm pin on the 22-pin connector located on the bottom of the dome camera. A 50-cm alarm cable is delivered with outdoor dome ZH811 for connecting alarm in- and output devices. Refer to section 2.1 Package Content.



Pin	Definition
2	ALM NC
4	ALM NO
6	ALM COM
11	ISOG
12	ALM-1
13	ALM-3
14	ALM-2
15	ALM-4
16	ALM-5
17	ALM-6
18	ALM-7
19	ALM-8
20	ALM GND

2.8 RS-485 Connector Definition

RS-485 is the interface that communicates the dome camera and its control device. Please connect the control keyboard to the speed dome through the terminal block. The recommended cables for RS-485 communication are **CAT 5** cables; maximum cable length for over 24-gauge wire is 4000 feet (1219 meters). If the total cable length exceeds 4000 feet, using a repeater to maintain the signals is recommended. Please refer to the figure and table below for pin defination and wiring.

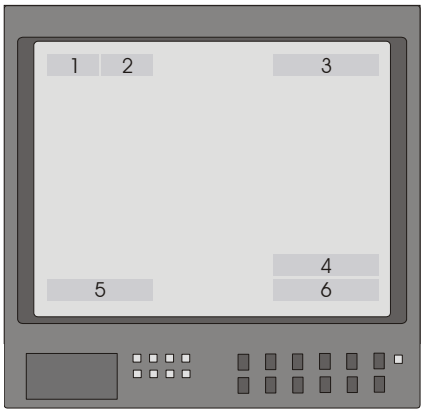


Pin	Corresponding Pins (22-Pin Connector)	Definition
1	7,10	T+, R+ (D+)
2	Reserved	
3	Reserved	
4	Reservied	
5	8,9	T-, R- (D-)

3. Operation and Configuration

3.1 OSD Display Format

The information shown on the screen are described in terms of OSD display, position and function description in the table below.



Position	Function	OSD Display	Description
1	Focus Modes	A	Auto Focus Mode
		M	Manual Focus Mode
2	Backlight	X	Back Light Compensation OFF
		B	Back Light Compensation ON
3	Alarm	ALARM	Alarm Message
4	Zoom Ratio	×1	Present Zoom Ratio (Optical Zoom(Digital Zoom)
5	Title	• Maximum 20 characters for each title. • 16 sets of title are available.	
6	Camera ID	Show the camera ID	

3.2 OSD Menu Tree

The OSD setup menu structure of E/F/U and R/K model are listed seperately in the following section. Ths star symbol indicates the factory default.

For detailed function description, please see section 3.3 Configuration Menu.

3.2.1 E / F / U Model

Item	Layer 1	Layer 2	Layer 3	Default
DEFAULT CAMERA	<ON>, <OFF>			ON
BACKLIGHT	<ON>, <OFF>			OFF
FOCUS	AUTO	AF Mode <Normal>, <Interval>, <Zoom Trigger>		Normal
	MANUAL	Focus Manual Speed <01>~<08>		
AE MODE	AUTO	Exposure Comp. <OFF>, <1>~<15>		OFF
	BRIGHT	Bright <0> ~ <31>		
	SHUTTER	Shutter Speed <1> ~ <1/10000> Sec.		
	GAIN	Gain <-3> ~ <28>dB		
	IRIS	Iris <Close>, <F1.6> ~ <F28>		
WBC MODE	AUTO (Auto White Balance)			☆
	INDOOR			
	OUTDOOR			
	ATW (Auto-tracing WBC)			
	MANUAL	R Gain <000> ~ <128>		
		B Gain <000> ~ <128>		
ID DISPLAY	<ON>, <OFF>			ON
SETUP MENU 1	FLIP	<IMAGE>, <M.E.>, <OFF>		OFF
	ZOOM SPEED	<1> ~ <8>		8
	SPEED BY ZOOM	<ON>, <OFF>		OFF
	AUTO CALI.	<ON>, <OFF>		OFF
	DIGITAL ZOOM	<ON>, <OFF>		ON
	SLOW SHUTTER	<ON>, <OFF>		OFF
	ANGLE ADJUSTER	ADJUST MIN ANGLE		00
		ADJUST MAX ANGLE		90
		RESET		
	RESET	<YES>		
	EXIT			
SETUP MENU 2	APERTURE	<01> ~ <16>		01
	MASK DISPLAY	<FIRST>, <LAST>		First
TITLE DISPLAY	<ON>, <OFF>			OFF
TITLE SETTING	<01> ~ <16>			01
ALARM SETTNG	ALARM PIN	<1> ~ <8>		1
	ALARM SWITCH	<ON>, <OFF>		OFF
	ALARM TYPE	<N.O.> (Normal Open), <N.C.> (Normal Close)		N.C.
	ALARM ACTION	PRESET		☆
		SEQUENCE		
		AUTOPAN		
		CRUISE		
	PRESET POINT SEQUENCE LINE AUTOPAN LINE CRUISE LINE	<001> ~ <256> <1> ~ <8> <1> ~ <4> <1>		001
	DWELL TIME	<001> ~ <127> Sec., <ALWAYS>		ALWAYS
	EXIT	YES		
HOME SETTING	HOME FUNC.	<ON>, <OFF>		OFF

Item	Layer 1	Layer 2	Layer 3	Default
	SELECT MODE	PRESET		☆
		SEQUENCE		
		AUTOPAN		
		CRUISE		
	PRESET POINT SEQUENCE LINE AUTOPAN LINE CRUISE LINE	<001> ~ <256> <1> ~ <8> <1> ~ <4> <1>		001
	RETURN TIME	<001> ~ <128> Min.		001
	GO	ENTER		
	EXIT			
SEQUENCE	SEQUENCE LINE	<1> ~ <8>		1
	SEQUENCE POINT	<01> ~ <32>		01
	PRESET POS.	<001> ~ <256>		001
	SPEED	<01> ~ <15>		01
	DWELL TIME	<000> ~ <127> Sec.		000
	RUN SEQUNECE			
	EXIT			
AUTOPAN	AUTOPAN LINE	<1> ~ <4>		1
	START POINT	<TO FIND>, <TO SAVE>		
	END POINT	<TO FIND>, <TO SAVE>		
	DIRECTION	<RIGHT>, <LEFT>		Right
	SPEED	<01> ~ <04>		01
	RUN AUTOPAN			
	EXIT			
CRUISE	RECORD START			
	RECORD END			
	RUN CRUISE			
	EXIT			
IR FUNCTION (F/U model only)	<AUTO>, <ON>			Auto
ALARM DETECT	DETECT SWITCH	<ON>, <OFF>		OFF
	DETECT MODE	<INT. FOCUS>, <FIX FOCUS>, <INT. AE>, <FIX AE>		Int. Focus
	EXIT			
PRIVACY	PRIVACY SWITCH	<ON>, <OFF>		OFF
	TRANSPARENCY	<ON>, <OFF>		OFF
	COLOR	<BLACK>, <HEAVY GRAY>, <LIGHT GRAY>, <WHITE>, <RED>, <GREEN>, <BLUE>, <CYAN>, <YELLOW>, <MAGENTA>		Black
	SET MASK	<01> ~ <24>	H CENTER <L>, <R>	
			V CENTER <D>, <U>	
			H SIZE <00> ~ <80>	
			V SIZE <00> ~ <60>	
	EXIT	YES		
TIME	TIME DISPLAY	<ON>, <OFF>		OFF
	SET YEAR			
	SET MONTH			
	SET DAY			
	SET HOUR			
	SET MINUTE			
	EXIT+SAVE			
SCHEDULE	SCHEDULE SW.	<ON>, <OFF>		OFF
	SCHEDULE POINT	<01> ~ <32>		01
	SCHEDULE HOUR			00
	SCHEDULE MIN			00
	SCHEDULE MODE	NONE		☆
		PRESET		
		SEQUENCE		

Item	Layer 1	Layer 2	Layer 3	Default
		AUTOPAN		
		CRUISE		
		IR FUNC.		
	NO FUNCTION PRESET POINT SEQUENCE LINE AUTOPAN LINE CRUISE LINE IR FUNCTION	 <1> ~ <256> <1> ~ <8> <1> ~ <4> <1> <AUTO>,<ON>		
	SCHEDULE RESET	YES		
	SCHEDULE EXIT			
EXIT OSD	YES			

3.2.2 R / K Model

Item	Layer 1		Layer 2	Layer 3	Default
DEFAULT CAMERA	<ON>, <OFF>				ON
BACKLIGHT	ON		BLC Level <000> ~ <100>		
	OFF				☆
FOCUS	AUTO		Focus Length <1cm>, <10cm>, <30cm> <1m>		10 cm
	MANUAL		<01> ~ <08>		
APERTURE	AUTO				☆
	MANUAL		H APERTURE <00> ~ <31>		
			V APERTURE <00> ~ <31>		
AE MODE	AUTO		IRIS OFFSET <00> ~ <99>		50
	SHUTTER	R Model	SHUTTER SPEED NTSC: <1/60> ~ <1/30000> PAL: <1/50> ~ <1/30000>		
		K Model	SHUTTER SPEED NTSC: <1/2> ~ <1/30000> PAL: <1/1.5> ~ <1/30000>		
	IRIS		IRIS <00> ~ <09>		
	AGC		AGC <00> ~ <05>		
WBC MODE	AUTO				☆
	MANUAL		R Gain <00> ~ <99>		
			B Gain <00> ~ <99>		
ID DISPLAY	<ON>, <OFF>				ON
SETUP MENU	FLIP		<IMAGE>(K model only), <M.E.>, <OFF>		OFF
	ZOOM SPEED		<FAST>, <SLOW>		Slow
	SPEED BY ZOOM		<ON>, <OFF>		OFF
	AUTO CALI.		<ON>, <OFF>		OFF
	DIGITAL ZOOM		<1> ~ <12>, <OFF>		OFF
	SLOW SHUTTER (K model only)		<1/2> ~ <1/60> Sec. (NTSC) <1/1.5> ~ <1/50> Sec. (PAL)		1/30
	ANGLE ADJUSTER		ADJUST MIN ANGLE		00
			ADJUST MAX ANGLE		90
			RESET		
	RESET		YES		
	EXIT				
TITLE DISPLAY	<ON>, <OFF>				OFF
TITLE SETTING	<01> ~ <16>				01
ALARM SETTNG	ALARM PIN		<1> ~ <8>		1
	ALARM SWITCH		<ON>, <OFF>		OFF
	ALARM TYPE		<N.O.>, <N.C.>		N.C.

Item	Layer 1	Layer 2	Layer 3	Default
	ALARM ACTION	PRESET		☆
		SEQUENCE		
		AUTOPAN		
		CRUISE		
	PRESET POINT SEQUENCE LINE AUTOPAN LINE CRUISE LINE	<001> ~ <256> <1> ~ <8> <1> ~ <4> <1>		001
	DWELL TIME	<001> ~ <127> Sec., ALWAYS		ALWAYS
	EXIT	YES		
HOME SETTING	HOME FUNC.	<ON>, <OFF>		OFF
	SELECT MODE	PRESET		☆
		SEQUENCE		
		AUTOPAN		
		CRUISE		
	PRESET POINT SEQUENCE LINE AUTOPAN LINE CRUISE LINE	<001> ~ <256> <1> ~ <8> <1> ~ <4> <1>		001
	RETURN TIME	<001> ~ <128> Min.		001
	GO	ENTER		
	EXIT	YES		
SEQUENCE	SEQUENCE LINE	<1> ~ <8>		1
	SEQUENCE POINT	<01> ~ <32>		01
	PRESET POS.	<001> ~ <255>, <END>		001
	SPEED	<01> ~ <15>		01
	DWELL TIME	<000> ~ <127> Sec.		000
	RUN SEQUNECE	ENTER		
	EXIT			
AUTOPAN	AUTOPAN LINE	<1> ~ <4>		1
	START POINT	<TO FIND>, <TO SAVE>		
	END POINT	<TO FIND>, <TO SAVE>		
	DIRECTION	<RIGHT>, <LEFT>		Right
	SPEED	<01> ~ <04>		01
	RUN AUTOPAN	ENTER		
	EXIT			
CRUISE	RECORD START			
	RECORD END			
	RUN CRUISE			
	EXIT			
IR FUNCTION (K model only)	AUTO	THRESHOLD	<LOW>, <MID>, <HI>	LOW
		IR COLOR	<B/W>, <COLOR>	B/W
		EXIT		
	ON			
WDR SETTING (K model only)	WDR SWITCH	<ON>, <OFF>		OFF
	WDR FUNCTION	AUTO		☆
		MANUAL	RATIO LEVEL <000>~<128>	
			SHUTTER LEVEL <000>~<128>	
			IRIS OFFSET <000>~<128>	
	EXIT			
PRIVACY (K model only)	PRIVACY SWITCH	<ON>, <OFF>		OFF
	SHADE	<BLACK>, <WHITE>, <GRAY>		Gray
	SET MASK	<1> ~ <8>	H CENTER <000> ~ <256>	
			V CENTER <000> ~ <256>	
			H SIZE <000> ~ <127>	
			V SIZE <000> ~ <127>	
	MASK CLEAR+RESET	<01> ~< 08>		01

Item	Layer 1	Layer 2	Layer 3	Default
	MASK DSIPLAY	<FIRST>, <LAST>		First
	EXIT	YES		
TIME	TIME DISPLAY	<ON>, <OFF>		OFF
	SET YEAR			
	SET MONTH			
	SET DAY			
	SET HOUR			
	SET MINUTE			
	EXIT+SAVE			
SCHEDULE	SCHEDULE SWITCH	<ON>, <OFF>		OFF
	SCHEDULE POINT	<01> ~ <32>		01
	SCHEDULE HOUR			00
	SCHEDULE MIN			00
	SCHEDULE MODE	NONE		☆
		PRESET		
		SEQUENCE		
		AUTOPAN		
		CRUISE		
		IR FUNC.		
	NO FUNCTION			
	PRESET	<1> ~ <256>		
	SEQUENCE LINE	<1> ~ <8>		
	AUTOPAN LINE	<1> ~ <4>		
	CRUISE LINE	<1>		
	IR FUNCTION	<AUTO>, <ON>		
	SCHEDULE RESET			
	SCHEDULE EXIT			
EXIT OSD	YES			

3.3 Configuration Menu

The detailed functions and parameter settings of your high speed dome can be set by the OSD (On Screen Display) menu with a control device, such as DynaColor control keyboard (D7313). The functions in OSD menu of E, F, U, R and K model are described in the following sections.

E/F/U Model

MAIN PAGE 1	
DEFAULT CAMERA	OFF
BACKLIGHT	OFF
FOCUS	AUTO
AE MODE	AUTO
WBC MODE	AUTO
ID DISPLAY	ON
SETUP MENU1	
SETUP MENU2	

R/K Model

MAIN PAGE 1	
DEFAULT CAMERA	OFF
BACKLIGHT	OFF
FOCUS	AUTO
APERTURE	AUTO
AE MODE	AUTO
WBC MODE	AUTO
ID DISPLAY	ON
SETUP MENU	ENTER

To enter the OSD menu of the selected camera, press <CAMERA MENU> button on the control keyboard and hold for 3 seconds to enter the OSD menu.

To select the setup item, use direction keys on keyboard to move the OSD cursor in the OSD menu.

To setup item, use direction keys on keyboard to move the OSD cursor in the OSD menu. For items with →, press right/left direction buttons on the control keyboard to select. For items with ↓, press <CAMERA MENU> button on the control keyboard to enter sub menu. For items with →↓, users can use the right/left direction buttons to select functions then press the <CAMERA MENU> button on the control keyboard to enter its sub menu.

For further detailed setup procedures, please refer to the user's manual of your installed control devices.

3.3.1 DEFAULT CAMERA

The DEFAULT CAMERA is used to restore the camera settings (e.g. Backlight/Focus/AE/WBC/Aperture). Once any one of the items is modified, the setting will become <OFF> automatically. Select <ON> for this item to recall the mentioned camera parameters.

NOTE: On E/F/U model, the Aperture function is provided in SETUP MENU2, instead of DEFAULT CAMERA.

3.3.2 BACKLIGHT

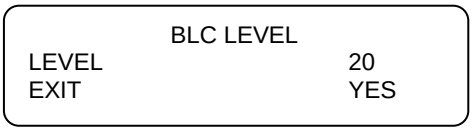
The Backlight compensation function prevents the center object from being too dark in surroundings where excessive light is behind the center object.

E/F/U Model:

Turn this item <ON>; the center object will be brightened in contrast to the edge of the picture (where a backlight would most likely be located).

R/K Model:

The Backlight Compensation Level ranges from 000 to 100.



NOTE: If this function is enabled, the WDR function (for K model only) will be disabled automatically. For details, refer to section 3.3.19 WDR Setting.

3.3.3 FOCUS

Automatically adjusts the focus position to maximize the high frequency content of the picture in a center measurement area, taking into consideration the high luminance and strong contrast components. The focus of the dome camera can be operated in two modes: Manual Focus mode and Auto Focus mode. Different settings for various models are described as follows.

E/F/U Model:

- **AUTO**

  The optimum focus is achieved by the internal digital circuit. There are 3 modes for users to select for different conditions.

  Normal AF (Auto Focus) Mode: The dome will automatically adjust the focus of the picture.

  Zoom Trigger Mode: When the zoom ratio is changed with the TELE or the WIDE buttons on control keyboard or other control devices, the dome will automatically adjust focus again after a period of time (the preset value is initially set for five seconds).

  Interval AF Mode: The mode is used for AF movements carried out at particular intervals. If users pan/tilt the dome, the dome will focus automatically after a period of time. The initial value is five seconds.

- **MANUAL**

  In this focus mode, users can adjust the lens focus manually by pressing the Focus Near/Far button on the control keyboard or other control devices.

R/K Model:

- **AUTO**

  The optimum focus is achieved by the internal digital circuit. Users can adjust the minimum auto focus range for some special conditions; the options are <1 cm>, <10 cm>, <30 cm> and <1 m>.

- **MANUAL**

  In this focus mode, users can adjust the lens focus manually by pressing the Focus Near/Far button on the control keyboard.

FOCUS LENGTH	
TURNING VALUE	10CM
EXIT	YES

3.3.4 APERTURE

Sharpness is the subjective evaluation of detail in the picture. With this APERTURE function, users can adjust the enhancement of the edges of objects in the picture. When shooting text, this function may help by making them sharper and achieve a better image. There are 32 levels of adjustment; the options are <00> ~ <31>, <00> represents "no enhancement".

- **AUTO**

  The dome camera will assign a proper aperture value automatically for camera to achieve a better image.

- **MANUAL**

  Select this item if you want to adjust aperture value manually. Higher value enhances the incident ray of camera.

APERTURE MENU	
H APERTURE	15
V APERTURE	15

NOTE: For E/F/U model, please refer to section 3.3.9 SETUP MENU2 for information on Aperture function.

3.3.5 AE MODE

The exposure is the amount of light received by the image sensor and is determined by how wide you open the lens diaphragm (iris adjustment), by how long you keep the sensor exposed (shutter speed), and other exposure parameters. With this item, users can define how the Auto Exposure (AE) function works.

E/F/U Model:

- **AUTO**

  In this mode, the camera's IRIS and AGC (Auto Gain Control) control circuits work together automatically to adjust the light exposure of Image sensor in order to get consistent video output level. At this condition the shutter speed is fixed at 1/60 (NTSC) or 1/50 (PAL). Users can offset the internal brightness reference level through auto Exposure Comp. to control the brightness of camera. The value of Exposure Comp. is selectable from <0> to <16> and the gain varies from -10.5 dB to 10.5 dB. Each step is 1.5 dB; the Exposure Comp. value <7> is equal to gain value 0 dB. The camera will not compensate for brightness when the Exposure Comp. is set to <OFF>**.** The default setting is <OFF>.

- **BRIGHT**

  The brightness control function adjusts IRIS and AGC gain using an internal algorithm. The brightness is controlled by gain when the light condition is dark and by iris when the light condition is bright.

- **SHUTTER**

  With this option, the SHUTTER speed takes main control of the exposure, and both IRIS and AGC will function automatically in cooperation with shutter speed to achieve consistent exposure output.

- **GAIN**

  The auto GAIN control function takes main control of exposure with priority over SHUTTER and IRIS. The internal circuit will function automatically to get consistent exposure.

- **IRIS**

  With this option, the IRIS function adjusts the exposure in higher property. SHUTTER speed and AGC circuit will function automatically in cooperating with IRIS to get consistent exposure output. The opening of a lens controls the amount of light reaching the surface of the selected device. By increasing the F-stop number (F/1.6, F/2, F/2.4, etc.), less light is permitted to pass.

R/K Model:

- **AUTO**

  In this mode, the camera's Shutter, IRIS and AGC control function work automatically to compensate the light exposure of image sensor for consistent video output level. IRIS OFF SET is used to set the level of IRIS variation.

- **SHUTTER**

  With this option, the SHUTTER priority is higher than IRIS and AGC; IRIS and AGC circuit will function automatically in cooperating with SHUTTER to get consistent exposure.

- **IRIS**

  With this option, the IRIS priority is higher than SHUTTER and AGC; SHUTTER and AGC circuit will function automatically in cooperating with IRIS to get consistent exposure. If the IRIS is modified manually, the action of exposure compensation depends on the AGC circuit.

- **AGC**

  With this option, the AGC priority is higher than SHUTTER and IRIS; SHUTTER and IRIS circuit will function automatically in cooperating with AGC to get consistent exposure. If AGC is adjusted manually, the exposure compensation depends on the changing of IRIS.

3.3.6 WBC MODE

A digital camera needs to find reference color temperature, which is a way of measuring the quality of a light source, for calculating all the other colors. The unit for measuring this ratio is in degree Kelvin (K). You can select one of the White Balance Control modes according to the condition. The following table shows the color temperature of some light sources.

Light Sources	Color Temperature in K
Cloudy Sky	6,000 to 8,000
Noon Sun and Clear Sky	6,500
Household Lighting	2,500 to 3,000
75-watt Bulb	2,820
Candle Flame	1,200 to 1,500

E/F/U Model:

- **AUTO**

  In this mode, white balance works within its color temperature range. This mode

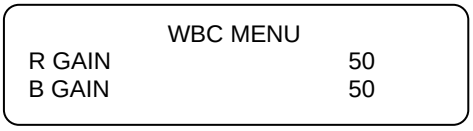
computes the white balance value output using color information from the entire screen. It outputs the proper value using the color temperature radiating from a black subject based on a range of values from 3000K to 7500K.

- **INDOOR**
  3200 K Base mode.

- **OUTDOOR**
  5800 K Base mode.

- **ATW**
  Auto Tracing White Balance mode. The dome taking out the signals in a screen in the range from 2000 K to 10000 K.

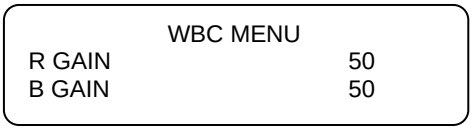
- **MANUAL**
  In this mode, users can change the White Balance value manually; R gain and B gain are adjustable and range from 0 to 128.



R/K Model:

- **AUTO**
  In this mode, white balance works within its color temperature range and calculates the best-fit white balance.

- **MANUAL**
  In this mode, users can change the White Balance value manually; adjustable R gain and B gain range from 0 to 99.



3.3.7 ID DISPLAY

Users are allowed to choose whether the dome ID will be displayed on monitor to identify the domes. For more information, please refer to section 2.4 Dome ID Setting.

- **ON**
  Display the ID address of the selected dome on the right bottom of the monitor screen.

- **OFF**

  Hide the ID address of the selected dome.

3.3.8 SETUP MENU

Users can adjust camera lens model parameters under SETUP MENUs. Depending on the model of dome cameras, the SETUP MENUs are different.

E/F/U Model

SETUP MENU1	
FLIP	ENTER
ZOOM SPEED	1
SPEED BY ZOOM	OFF
AUTO CALI.	OFF
DIGITAL ZOOM	12
SLOW SHUTTER	OFF
ANGLE ADJUSTER	ENTER
RESET	YES
EXIT	YES

SETUP MENU2	
APERTURE	01
MASK DISPLAY	FIRST

R/K Model

SETUP PAGE	
FLIP	ON
ZOOM SPEED	FAST
SPEED BY ZOOM	ON
AUTO CALI.	OFF
DIGITAL ZOOM	12
SLOW SHUTTER	1/2
ANGLE ADJUSTER	ENTER
RESET	YES
EXIT	YES

- **FLIP (IMAGE/ME/OFF)**

  User can track an object continuously when it passes through under dome camera with setting Flip to IMAGE (digital flip) or M.E. (mechanical flip).

FLIP SETTING	
FLIP	OFF
EXIT	YES

IMAGE

IMAGE represents digital IMAGE FLIP, enables users to keep tracking object seamlessly and no delay occurs in comparing with mechanical flip.

NOTE: The Privacy Mask function will be automatically disabled if the Image Flip function is enabled, and "Masking will be disabled" will be displayed on the screen.

M.E.

The item is a standard mechanical operation. As the dome tilts 90°, it will pan 180°, then continuing tilt to keep tracking object.

OFF

Select this item to disable the flip function.

NOTE: The dome will only be able to tilt 90°, or -10° ~100° with angle adjuster adjustments.

- **ZOOM SPEED**

  This item is used to set the zoom speed for operating the dome camera.

  E/F/U Model:

  For these models, the zoom speed options are <1> (slow) ~ <8> (fast). The default is <8>.

  R/K Model:

  For the two models, the options are <FAST> and <SLOW> (default).

- **SPEED BY ZOOM**

  If the item is set to <ON>, the pan/tilt speed will be adjusted by internal algorithm when zooming automatically. The larger zoom ratio leads the lower rotation speed.

- **AUTO CALIBRATION**

  There are one horizontal and one vertical infrared rays check points in each dome. When the dome camera position may be moved during installation or maintenance, the relative distance between the original set point and the check point has been changed. Enable the Auto Calibration function, the dome will automatically detect that and reset the point back to the original position.

- **DIGITAL ZOOM**

  With this item, users can enable or disable the 12× Digital Zoom. The Digital Zoom activate after the full Optical Zoom level is reached.

  NOTE: The difference between optical and digital zoom is that optical zoom uses the lens within the camera to draw the image closer via zoom in or out to achieve the desired effect. Optical zoom remains the same and the full resolution of the zoomed image quality. On the other hand, Digital zoom takes a portion of image and expands that image to the full size of the image; however the image quality will be reduced.

E/F/U Model:

For these models, maximum 12× digital zoom function is allowed to be enabled. The default setting is <ON>.

R/K Model:

For the two models, Digital zoom ratio is adjustable from <1> to <12>.

- **SLOW SHUTTER**

  The shutter speed determines how long the image sensor is exposed to light. To see clear image in a dark environment, enable this function and select a slower shutter speed.

  E/F/U Model:

  As enable this digital slow shutter function, the dome will automatically adjust the shutter speed basing on the light condition of installation environment. It enables users to see objects in a dark environment under 0.2 lux.

  K Model:

  The shutter speed is adjustable on K model. With the slowest shutter speed, users can see objects in a dark environment under 0.2 lux; or see a smooth video image with a higher shutter speed. The options are from <1/2> to <1/30k> for NTSC and <1/1.5> to <1/30k> for PAL.

- **ANGLE ADJUSTER**

  The item is for adjusting the camera view angle. The ranges of view angle are changed in different FLIP mode: the angle ranges from -10° to +100° with ME FLIP and FLIP OFF modes, and from -10° ~ +190° with IMAGE FLIP mode. With IMAGE FLIP function, users are able to adjust the view angle from -10° ~ +190° to catch the true horizontal line.

ANGLE ADJUSTER	
ADJUST MIN ANGLE	-10 DEG
ADJUST MAX ANGLE	100 DEG
EXIT+SET	YES

- **RESET**

  Select this item to reset all the camera parameters of SETUP MENUs to the factory default.

- **EXIT**

  Exit the SETUP MENU1 and go back to MAIN MENU.

3.3.9 SETUP MENU2 (E/F/U Model Only)

The Aperture and Mask Display settings can be configured under SETUP MENU2.

SETUP MENU2	
APERTURE	01
MASK DISPLAY	FIRST

- **APERTURE**

  Under this setup menu, users can adjust the enhancement of the edges of objects in the picture. There are 16 levels of adjustment; the options are <01> ~ <16>, <01> represents "no enhancement". When shooting text, this function may help by making them sharper.

- **MASK DISPLAY**

  In this item, users can set the occasion to display the Privacy Mask, which aims to avoid any intrusive monitoring. If preset point function or sequence function is activated, the difference of the two display mode will be obvious.

  FIRST

  If select this display mode and activate preset or sequence functions, the camera will detect and display the masks set in the next area first, then rotates the dome to the next preset point.

  LAST

  If select this display mode and activate preset or sequence functions, the dome will move the next preset point zone, then detect and display mask set in that zone.

  NOTE: Setting privacy mask with 1× optical zoom, and setting the sequence speed value higher than 10 is recommended.

3.3.10 TITLE DISPLAY

Users are allowed to name a certain view area and display its title for easy recognition. At this item, users can choose to display or not to display the titles set in advance.

- **ON**

  A title set for certain view will be displayed when the dome back to the view area.

- **OFF**

  When the TITLE DISPLAY is set <OFF>, no title will be displayed on the screen

even titles are set in advance.

3.3.11 TITLE SETTING

Up to 16 zone titles can be set with maximum 20 characters for each title; two mask zones are allowed to set in a view area. Users can name the zone titles with privacy mask ID numbers for future recognition.

NOTE: For K model, the available area for setting privacy mask is restricted within tilt angle 45°.

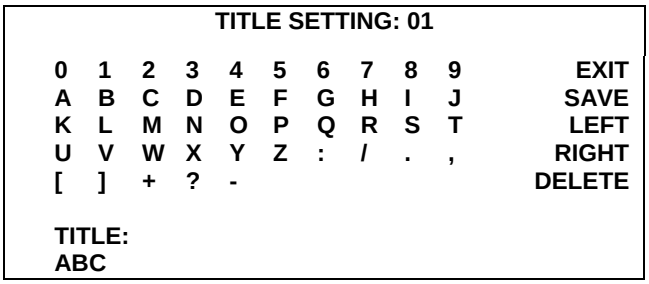
Follow the steps to set a camera title.

STEP 1: Operate dome to certain view area where you want to set a title for it.

STEP 2: Turn on OSD and select <TITLE SETTING>.

STEP 3: Select a number to indicate the view area.

STEP 4: Press <ENTER> to go into editing mode.



STEP 5: Choose a character with direction keys and then press <ENTER> to input.

Example: <A > <ENTER>, <B> <ENTER>, <C> <ENTER>

TITLE: ABC

STEP 6: To delete entered characters, move the cursor to <LEFT> or <RIGHT> and press <ENTER> to select a character in entry field, then move the cursor to <DELETE> and press <ENTER> to delete the selected character.

STEP7: When the setting is completed, move the cursor to <SAVE> and press <ENTER> to save.

3.3.12 ALARM SETTING

The integrated high speed dome provides eight alarm inputs and one alarm output (N.O. and N.C) to connect alarm devices. With this function, dome will cooperates with alarm system to catch the event images. For wiring, please refer to the installation guide and/or qualified service personnel. Alarm parameters can be set on this page.

ALARM SETTING	
ALARM PIN	1
ALARM SWITCH	OFF
ALARM TYPE	N.C.
ALARM ACTION	PRESET
PRESET POINT	001
DWELL TIME	ALWAY
EXIT	YES

- **ALARM PIN**

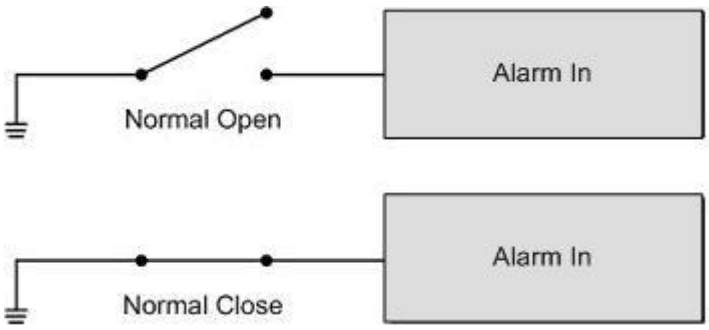
  The dome provides 8 alarm inputs and 1 output (1× N.O. and 1× N.C.). Select an alarm connector which you want to set its alarm-related parameters with this item, and then set its alarm-related parameters in Alarm Setting menu. For alarm pin definitions, please refer to section 2.7 Alarm Pin Definition or the installation guide.

- **ALARM SWITCH**

  The item is used to enable or disable the selected alarm pin function. Use the left/right direction keys on the control keyboard to change the setting.

- **ALARM TYPE**

  There are two kinds of alarm types: Normal Open and Normal Close, which are illustrated as below. Select an alarm type that corresponds with the alarm application.



- **ALARM ACTION**

  Select one of these modes that choose a kind of actions that should be executed when an alarm is triggered. The alarm actions can be set to execute the preset position, sequence, auto-pan or cruise function. Use the right direction key of the control keyboard to change the setting, and the bellowing items will change in cooperating with your selection.

- **PRESET**

  Select a preset point where the dome should go when an alarm pin is triggered. The Preset points can be set by a control keyboard.

SEQUENCE

Select a sequence line that the dome camera should execute when alarm pin is triggered. The Sequence line should be defined prior in SEQUENCE setup menu.

AUTOPAN

Select an auto-pan line that the dome camera should execute when alarm pin is triggered. The Auto-pan line can be defined in setup AUTOPAN menu.

CRUISE

Select a cruise line that the dome camera should execute when alarm pin is triggered. The Cruise line can be defined in CRUISE setup menu.

- **DWELL TIME**

  The DWELL TIME is the duration of executing ALARM ACTION: Preset or Sequence. When alarm takes place, the dome will go to the preset position or execute sequence function and stay at each sequence point for a period of time (1~127 seconds). If select <Always>, the dome will go to the preset position and stay there until alarm condition is released or users rotate the dome.

  NOTE: The DWELL TIME is only accessible when selecting ALARM ACTION: Preset or Sequence.

- **EXIT**

  Exit the ALARM SETTING menu.

3.3.13 HOME SETTING

Users are able to set an operation mode to ensure constant monitoring; if the dome idles for a period of time, the pre-set function will be activated automatically, this is the HOME function. HOME function allows constant and accurate monitoring, to avoid the dome stops or missing events.

HOME SETTING	
HOME FUNCTION	OFF
SELECT MODE	PRESET
PRESET POINT	001
RETURN TIME	001
GO	ENTER
EXIT	YES

- **HOME FUNCTION**

  The item is used to enable or disable the HOME function. Use the left/right direction keys of the control keyboard to change the setting.

- **SELECT MODE**
  Select one of the modes that the dome should execute when HOME function is enabled and the RETURN TIME is up. The options are <AUTOPAN>, <SEQUENCE>, <CRUISE> and <PRESET>. Use the left/right direction keys of the control keyboard to change the setting, and the bellowing items will change in cooperating with your selection.

- **PRESET**
  Select a preset point where the dome should go after the Return Time function, which will be mentioned latter, is activated.

  SEQUENCE
  Select a sequence line that the dome camera should execute after the Return Time function is activated. The Sequence line should be defined prior in SEQUENCE setup menu.
  AUTOPAN
  Select an auto-pan line that the dome camera should execute after the Return Time function is activated. The Auto-pan line can be defined in AUTOPAN setup menu.
  CRUISE
  Select a cruise line that the dome camera should execute after the Return Time function is activated. The Cruise line can be defined in CRUISE setup menu.

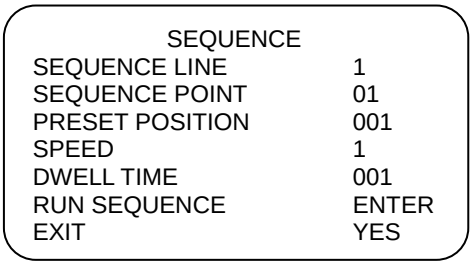
- **RETURN TIME**
  The dome starts to count down RETURN TIME when the dome idles, and will execute the SELECT MODE function if the return time is up. The RETURN TIME ranges from 1 to 128 minutes.

- **GO**
  If HOME function is enabled, the users are allowed to execute HOME function manually by selecting this item.

- **EXIT**
  Exit the HOME SETTING menu.

3.3.14 SEQUENCE

The function executes pre-positioning of the pan, tilt, zoom and focus features in a certain sequence for a camera. Before set up this function, users must setup at least two preset points.



- **SEQUENCE LINE**

  There are eight sets of sequence lines built in the dome camera. Using LEFT/RIGHT direction keys to select a line first and then set its sequence points.

- **SEQUENCE POINT**

  Up to 32 points can be specified for each sequence line. The sequence points represent the orders of the preset points that the dome will automatically run, and the bellowing setup items; PRESET POSITION, SPEED, and DWELL TIME, are related to this item.

- **PRESET POSITION**

  Users can assign a specific preset position to the selected sequence point with this item.

- **SPEED**

  Users can set the Speed that the dome goes to the next sequence point, and the setup speed range is from 1 ~ 15. Refer to below table for more information.

	PAN (degree/sec.)	**TILT** (degree/sec.)
Speed 1	10	8
Speed 2	23	12
Speed 3	35	22
Speed 4	45	30
Speed 5	55	40
Speed 6	65	50
Speed 7	75	58
Speed 8	185	185
Speed 9	205	210
Speed 10	225	240
Speed 11	250	275
Speed 12	280	305
Speed 13	320	335
Speed 14	365	365
Speed 15	400	400

- **DWELL TIME**

  The DWELL TIME is the duration time that the dome will stay at the sequence point, and the range is from <0> to <127> seconds. The dome will go to the next sequence point when the DEWEL TIME is up. If the setting is <0>, the dome will stay at this sequence point until users manually move the dome.

- **RUN SEQUENCE**

  User can command the dome camera to run the selected Sequence line manually.

- **EXIT**

  Select the item to exit the SEQUENCE menu.

3.3.15 AUTOPAN

Auto-pan means rotating or scanning side-to-side motion by a dome camera to view an area horizontally. The parameters can be set on this page.

AUTOPAN	
AUTOPAN LINE	1
START POINT	TO FIND
END POINT	TO FIND
DIRECTION	RIGHT
SPEED	1
RUN AUTOPAN	ENTER
EXIT	YES

- **AUTOPAN LINE**

  There are four sets of auto-pan lines built in dome camera. Users can choose a line to execute using LEFT/RIGHT direction keys. Users are able to command the dome camera to do continuously panning without limit by setting the start point the same as endpoint.

- **START POINT**

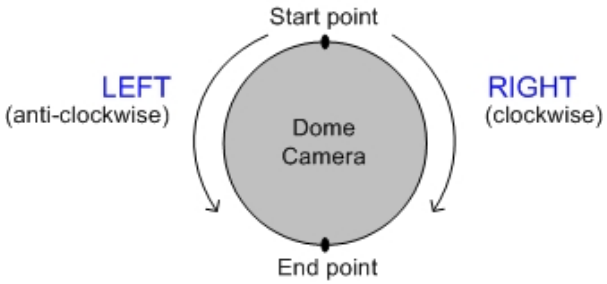
  Follow the description to set the start position of the AUTOPAN path.

  1. Move the cursor to <START POINT> and press <ENTER> while <TO FIND> item flashes, the item will turn <TO SAVE> automatically.
  2. Move the dome to a desired position and press <ENTER> to save the position as the start point; the cursor will move to <END POINT> automatically. Ensure to set the end point to complete the auto-pan setting.

  NOTE: The tilt and zoom value of the start point will be recorded and fixed for the selected auto-pan line.

- **END POINT**
  Users are able to set the end point after the start point is defined. Pan the dome to another position and press <ENTER> to save the position as the end point.

- **DIRECTION**
  The item is for setting the AUTOPAN direction of dome camera. The dome will start to pan clockwise from the start point to the end point if your selection is <RIGHT>, and then return to the start point. The dome will start to pan anti-clockwise from the start point to the end point if your selection is <LEFT>. Refer to below diagram.



- **SPEED**
  The item is for defining the dome camera rotation speed while running auto-pan. The speed is adjustable from 1 to 4; refer to the table below for details.

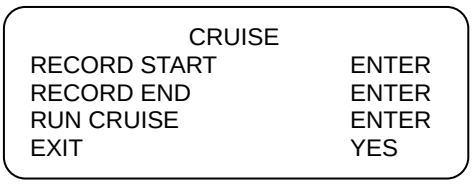
	PAN (degree/sec.)
Speed 1	10
Speed 2	23
Speed 3	35
Speed 4	45

- **RUN AUTOPAN**
  After the setting is completed, select this item to manually execute the Auto-pan function.

- **EXIT**
  Exit the AUTOPAN setup menu.

3.3.16 CRUISE

A Cruise is a route of manual operations that can be stored and recalled to execute repeatedly. It can be formed of pan, tilt position and zoom parameters (the zoom setting only with E/F/U model).



- **RECORD START**

  Follow the description to record the CRUISE path.

  1. Rotate the dome camera to a desired view area, and press <ENTER> to build the cruise path using joystick on the control device. The percentage of the memory buffer will be displayed on the screen.
  2. Pan, tilt the dome camera to form a path. The zoom setting is only available with E/F/U model.

NOTE: Beware of the memory size when building the cruise path. After the percentage of the buffer becomes 100%, the path will not be recorded.

- **RECORD END**

  The cursor will be moved to RECORD END while building the cruise line; when the setting is completed, press <ENTER> to save the path.

- **RUN CRUISE**

  After the setting is completed, select this item to manually execute the Cruise function.

- **EXIT**

  Exit the CRUISE setup menu.

3.3.17 IR FUNCTION (Removable IR Cut)

With the IR cut filter, the dome can still catch clear image at night time or very dark light condition. During day time, the IR cut filter will be on to block the infrared light for clear image; during night time, the IR cut filter will be removed to catch infrared light to view images in black and white. Only with K model, users are able to view color images when the IR function activated.

Refer to the description to operate the removable IR cut filter.

F/U Model:

- **AUTO**

  The Internal circuit will automatically decide the occasion to remove the IR cut filter according to the value of light condition calculated by the internal algorithm.

- **ON**
  Select the item to remove the IR cut filter.

K Model:

IR FUNCTION	
THRESHOLD	LOW
IR COLOR	COLOR
EXIT	YES

- **AUTO**
  The Internal circuit will automatically decide the occasion to remove the IR cut filter according to the image brightness level.

  THRESHOLD
  The dome will remove the filter immediately when the threshold value is reached. The threshold options are <LOW>, <MID> and <HI>. <LOW> threshold indicates a higher sensitivity and can improve the reliability of lens.
  IR COLOR
  When IR function is enabled, the video output can be programmed as color or B/W.

- **ON**
  Select the item to remove the IR cut filter.

3.3.18 ALARM DETECT (E/F/U Model Only)

This function instructs the camera to detect movement within the monitoring area and then send an alarm signal automatically. To activate this function, alarm connection setups must be completed in advance.

ALARM DETECT	
DETECT SWITCH	OFF
DETECT MODE	INT. FOCUS
EXIT	YES

- **DETECT SWITCH**
  The item is used to enable or disable the ALARM DETECTION function.

- **DETECT MODE**
  Four alarm detect modes are provided for different application.

INT. FOCUS

The alarm will be triggered if the internal focus changes; and if the focus returns to the original position, the alarm will stop.

FIX FOCUS

If focus movement is detected, the alarm will be triggered, and the alarm stops when focus returns to the original position. If the detected focus movement keeps changing for more than four seconds, the new focus position will be memorized as the reference and the alarm will stop.

NOTE: The INT. FOCUS and FIX FOCUS detect modes will be activated only with Auto Focus mode.

INT. AE

When Auto Exposure (AE) movement is detected, the alarm will be triggered; and if the Exposure Level returns to the original level, the alarm will stop.

FIX AE

The alarm will be triggered if the Exposure value changes; if the adjusted AE value retains for four seconds, the value will be saved as the reference and the alarm will stops.

- **EXIT**

  Exit this page.

3.3.19 WDR Setting (K Model Only)

The Wide Dynamic Range function is especially effective in solving indoor and outdoor contrast issues to enhance better image quality and video performance. It enables the dome to catch detailed data from the dark part (Indoor) without any saturation from the bright part (Outdoor). The parameter of WDR function can be set on this page.

NOTE: The Backlight function will automatically turned off when the WDR function is enabled, because the WDR function has better effect than the Backlight compensation.

WDR SETTING	
WDR SWITCH	OFF
WDR FUNCTION	AUTO
EXIT	YES

- **WDR SWITCH**

  Enable or disable the WDR function with the item.

- **WDR FUNCTION**

  This item is used to define the WDR function mode.

  AUTO

  If select <AUTO>, the dome camera operates the WDR function automatically.

  MANUAL

  Users are allowed to adjust WDR function manually by defining the RATIO LEVEL, SHUTTER SPEED and IRIS OFFSET value.

WDR MODE	
RATIO LEVEL	000
SHUTTER SPEED	000
IRIS OFFSET	000
EXIT	YES

- **EXIT**

  Exit this setup menu.

3.3.20 PRIVACY

The Privacy Mask function aims to avoid any intrusive monitoring. Users can adjust the camera view position using joystick, and adjust the mask size and area via the direction keys on control keyboard. The dome camera will memorize the center of the selected view as an original point, so the joystick will be locked as users enter the Privacy Setup menu. Refer to the description for setting Privacy masks.

NOTE: The Image Flip function will be disabled automatically while the Privacy function is enabled.

E/F/U Model:

PRIVACY MASK MENU	
PRIVACY SWITCH	ON
TRANSPARENCY	OFF
COLOR	BLACK
SET MASK	01
EXIT	YES

- **PRIVACY SWITCH**

  User can enable or disable the Privacy Mask function through this item.

- **TRANSPARENCY**

  The color of privacy mask can be set as transparent related to background image. Select <ON> to display transparent masks.

- **COLOR**

  The color of privacy mask can be set through this item. The available colors are black, heavy gray, light gray, white, red, green, blue, cyan, yellow and magenta.

- **SET MASK**

  Use the control device to move the dome camera to the area whether you want to set a mask. Press <ENTER> to enter MASK SETUP MENU. The dome will memorize this position as privacy mask position. Up to 24 masks can be set.

MASK01 MENU	
H CENTER	L/R
V CENTER	U/D
H SIZE	000
V SIZE	000
EXIT+SAVE	YES

  H CENTER

  The original horizontal center of mask zone is the center of screen; it is able to move to other position by adjusting the horizontal value with the LEFT/RIGHT keys.

  V CENTER

  The original vertical center of mask zone is the center of screen; it is able to move to other position by adjusting the vertical value with the LEFT/RIGHT keys.

  H SIZE (00~80)

  User can adjust the horizontal size of privacy mask through this item. Set the H and V size to 0 can also delete the selected mask.

  V SIZE (00~60)

  User can adjust the vertical size of privacy mask through this item. Set the H and V size to 0 can also delete the selected mask.

- **EXIT**

  Exit this page.

K Model:

PRIVACY	
PRIVACY SWITCH	ON
SHADE	GRAY
SET MASK	01
MASK CLEAR+RESET	01
MASK DISPLAY	FIRST
EXIT	YES

- **PRIVACY SWITCH**

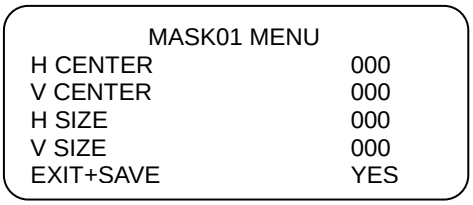
  The item is used to enable or disable masking function. Set this item to <ON> before configuring mask zone.

- **SHADE**

  The color of privacy mask can be selected through this item. The available colors are black, gray and white.

- **SET MASK**

  After pressing <ENTER> on this item, dome will memorize this position as privacy mask position, up to 8 masks can be set. The model restricts the mask zones to be set too close with each other.



H CENTER (000~256)

The original center of mask zone is the center of screen. User can move the center of mask zone to another position through adjust this value by pressing the LEFT/RIGHT keys.

V CENTER (000~256)

The original center of mask zone is the center of screen. User can move the center of mask zone to another position through adjust this value by pressing the LEFT/RIGHT keys.

H SIZE (000~127)

User can adjust the horizontal size of privacy mask through this item. Set the H and V size to 0 can also delete the selected mask.

V SIZE (000~127)

User can adjust the vertical size of privacy mask through this item. Set the H and V size to 0 can also delete the selected mask.

- **MASK CLEAR+RESET**

  The item is used to clear the mask settings of the selected privacy mask. Use LEFT/RIGHT direction keys to select a mask and press <ENTER> to erase its configuration.

- **MASK DISPLAY**

  This item is used to set the occasion to display privacy mask.

  FIRST

  If select this mode, the camera will detect the mask zone of the next preset position and display the mask in advance, then pan the dome to the preset point.

LAST

If select this mode, the camera will move the dome to the preset point, then display the mask zone.

NOTE: For K model, the available area for setting privacy mask is restricted within tilt angle 45°, and two mask zones are allowed to set in a view area.

- **EXIT**

  Exit this page.

3.3.21 TIME FUNCTION

The item is used to set the TIME related parameters of the integrated high speed dome.

TIME SETTING	
TIME DISPLAY	OFF
SET YEAR	05
SET MONTH	10
SET DAY	02
SET HOUR	12
SET MINUTE	12
EXIT+SAVE	YES

- **TIME DISPLAY**

  Select <ON> to display the Time information on screen, or <NO> not to display.

- **YEAR / MONTH / DAY**

  The items are for setting up the system date.

- **HOUR / MINUTE**

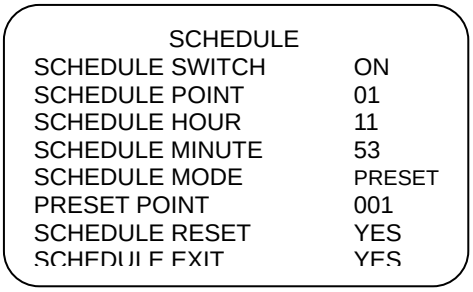
  The items are for setting up the system time.

- **EXIT+SAVE**

  Exit this page.

3.3.22 SCHEDULE FUNCTION

The unique Scheduling function enables users to program a preset point or function (Sequence/Auto-pan/Cruise) automatically actions in certain period of time.



- **SCHEDULE SWITCH**
  Select <ON> to enable the Schedule function or <OFF> to disable.

- **SCHEDULE POINT**
  Users are allowed to set up 32 schedule points.

- **SCHEDULE HOUR / MINUTE**
  The items are for setting up the time of schedule points.

- **SCHEDULE MODE**
  This is for setting the Schedule function of the selected schedule point; the options are as follows.

  NONE
  No function will be executed for the schedule by selecting the item.
  PRESET
  Select one of the defined preset points for the selected schedule.
  SEQUENCE
  Select one of the eight defined sequence lines for the schedule.
  AUTOPAN
  Select one of the four defined auto-pan lines for the selected schedule.
  CRUISE
  Enable the Cruise function for the selected schedule.
  IR FUNCTION
  Select <AUTO> or <ON> to enable the function for the schedule.

3.3.23 EXIT OSD

To exit the OSD setup menu, users can either select this item, or press the ESC button on control keyboard quickly.

Appendix A: Technical Specification

	Items		R Model	E Model	F Model	K Model	U Model
CAMERA							
	Effective Pixels	NTSC	380k				
		PAL	440k				
	Horizontal Resolution	NTSC	480 TV lines				
		PAL	480 TV lines				
	Scanning Area		Progressive 1/4" CCD	1/4" CCD ExView	1/4" CCD ExView	Progressive 1/4" CCD	1/4" CCD ExView
	Scanning System		PAL, NTSC				
	Synchronization		Internal / Line Lock				
	Video Output		1.0 Vp-p / 75Ω , BNC				
	S/N Ratio (AGC OFF)		More than 49dB				
	Minimum Illumination		1 lux	0.7 lux	0.7 lux, 0 lux (IR illuminator)	0.01 lux, 0 lux (IR illuminator)	0.01 lux, 0 lux (IR illuminator)
	Focal Length		4~88 mm	4.1~73.8 mm		3.6~82.8 mm	3.5~91 mm
	Zoom Ratio		22x optical zoom	18x optical zoom	18x optical zoom	23x optical zoom	26x optical zoom
	Digital Zoom		x1 ~ x12 variable				
	Focus Mode		Auto / Manual				
	White Balance		Auto / Manual				
	Iris Control		Auto / Manual				
	Electronic Shutter	NTSC	1/60~1/30k sec.	1/1~1/10k sec.		1/2~1/30k sec.	1/1~1/10k sec.
		PAL	1/50~1/30k sec	1/1~1/10k sec		1/1.5~1/30k sec	1/1~1/10k sec
	AGC control		Auto / Manual				
	Back Light Compensation		On / Off				
OPERATION							
	Built-in Protocol		DynaColor, Pelco, VCL, Philips, AD-Manchester, AD-422, etc.				
	Pan Travel		360° endless				
	Tilt Travel		-10°~100°	-10°~190°			
	Manual Speed		1°~90°/s				
	Presets		256				
	Preset Accuracy	Pan	0.225°				
		Tilt	0.45°				
	Preset Speed**	Pan	5°~400°/s, High Resolution (Both D&E Type Motor)				
		Tilt	5°~400°/s, Standard Resolution (D Type Motor). 5°~400°/s, High Resolution (E Type Motor)				
	Cruise		1				
	Sequence		8				
	Auto Pan		4				
	Privacy Mask		-	24	24	8	24
	Pan & Tilt Proportional to Zoom Ratio		Yes	Yes	Yes	Yes	Yes
	P/T/Z Auto-Restoring		Yes	Yes	Yes	Yes	Yes
	Auto Turn Around		Yes	Yes	Yes	Yes	Yes
	Zone Title		Yes	Yes	Yes	Yes	Yes
	Home Function		Yes	Yes	Yes	Yes	Yes
	Digital Flip		-	Yes	Yes	Yes	Yes
	Digital Slow Shutter		-	Yes	Yes	Yes	Yes
	Motion Detection		-	Yes	Yes	-	Yes
	Wide Dynamic Range		-	-	-	Yes	-
	Day/Night: IR Cut Filter		-	-	Yes	Yes	Yes
	Alarm Input		8				
	Alarm Output		1				
GENERAL							
	Environment		Indoor / Outdoor				
	Controller Interface		RS-485				
	Operating Temperature		-50°C~50°C (-58°F~122°F)				
	Water Proof Standard		IP 66 Standard				
	Dimension		⌀172 x 302.5mm (6.7 x 11.9 Inches)				
			⌀190 x 302.5mm (7.5x 11.9 Inches), with sunshield				
	Weight		5.8 kg (12.9 lbs)				
	Power Source		AC 24 V				
	Power Consumption		30 W / 65 W (with Heater)				
	Regulatory		CE, FCC, IP66				

**There are D&E motors, differentiated by the type of motors of high speed dome cameras and presents various "Preset Speed" and resolutions. Standard Resolution: 800 steps/circle. High Resolution: 1600 steps/circle

OSD Menu Notes

The following OSD menu tables are provided for users to record the dome settings.

<E/F/U Model>

Item	Layer 1	Layer 2	Layer 3	Note
DEFAULT CAMERA	<ON>, <OFF>			
BACKLIGHT	<ON>, <OFF>			
FOCUS	AUTO	AF Mode <Normal>, <Interval>, <Zoom Trigger>		
	MANUAL	Focus Manual Speed <01>~<08>		
AE MODE	AUTO	Exposure Comp. <OFF>, <1>~<15>		
	BRIGHT	Bright <0> ~ <31>		
	SHUTTER	Shutter Speed <1> ~ <1/10000> Sec.		
	GAIN	Gain <-3> ~ <28>dB		
	IRIS	Iris <Close>, <F1.6> ~ <F28>		
WBC MODE	AUTO (Auto White Balance)			
	INDOOR			
	OUTDOOR			
	ATW (Auto-tracing WBC)			
	MANUAL	R Gain <000> ~ <128>		
		B Gain <000> ~ <128>		
ID DISPLAY	<ON>, <OFF>			
SETUP MENU 1	FLIP	<IMAGE>, <M.E.>, <OFF>		
	ZOOM SPEED	<1> ~ <8>		
	SPEED BY ZOOM	<ON>, <OFF>		
	AUTO CALI.	<ON>, <OFF>		
	DIGITAL ZOOM	<ON>, <OFF>		
	SLOW SHUTTER	<ON>, <OFF>		
	ANGLE ADJUSTER	ADJUST MIN ANGLE		
		ADJUST MAX ANGLE		
		RESET		
	RESET	<YES>		
	EXIT			
SETUP MENU 2	APERTURE	<01> ~ <16>		
	MASK DISPLAY	<FIRST>, <LAST>		
TITLE DISPLAY	<ON>, <OFF>			
TITLE SETTING	<01> ~ <16>			
ALARM SETTNG	ALARM PIN	<1> ~ <8>		
	ALARM SWITCH	<ON>, <OFF>		
	ALARM TYPE	<N.O.> (Normal Open), <N.C.> (Normal Close)		
	ALARM ACTION	PRESET		
		SEQUENCE		
		AUTOPAN		
		CRUISE		
	PRESET POINT SEQUENCE LINE AUTOPAN LINE CRUISE LINE	<001> ~ <256> <1> ~ <8> <1> ~ <4> <1>		
	DWELL TIME	<001> ~ <127> Sec., <ALWAYS>		
	EXIT	YES		
HOME SETTING	HOME FUNC.	<ON>, <OFF>		
	SELECT MODE	PRESET		
		SEQUENCE		
		AUTOPAN		
		CRUISE		
	PRESET POINT SEQUENCE LINE AUTOPAN LINE CRUISE LINE	<001> ~ <256> <1> ~ <8> <1> ~ <4> <1>		
	RETURN TIME	<001> ~ <128> Min.		
	GO	ENTER		
	EXIT			
SEQUENCE	SEQUENCE LINE	<1> ~ <8>		
	SEQUENCE POINT	<01> ~ <32>		

Item	Layer 1	Layer 2	Layer 3	Note
	PRESET POS.	<001> ~ <256>		
	SPEED	<01> ~ <15>		
	DWELL TIME	<000> ~ <127> Sec.		
	RUN SEQUNECE			
	EXIT			
AUTOPAN	AUTOPAN LINE	<1> ~ <4>		
	START POINT	<TO FIND>, <TO SAVE>		
	END POINT	<TO FIND>, <TO SAVE>		
	DIRECTION	<RIGHT>, <LEFT>		
	SPEED	<01> ~ <04>		
	RUN AUTOPAN			
	EXIT			
CRUISE	RECORD START			
	RECORD END			
	RUN CRUISE			
	EXIT			
IR FUNCTION (F/U model only)	<AUTO>, <ON>			
ALARM DETECT	DETECT SWITCH	<ON>, <OFF>		
	DETECT MODE	<INT. FOCUS>, <FIX FOCUS>, <INT. AE>, <FIX AE>		
	EXIT			
PRIVACY	PRIVACY SWITCH	<ON>, <OFF>		
	TRANSPARENCY	<ON>, <OFF>		
	COLOR	<BLACK>, <HEAVY GRAY>, <LIGHT GRAY>, <WHITE>, <RED>, <GREEN>, <BLUE>, <CYAN>, <YELLOW>, <MAGENTA>		
	SET MASK	<01> ~ <24>	H CENTER <L>, <R>	
			V CENTER <D>, <U>	
			H SIZE <00> ~ <80>	
			V SIZE <00> ~ <60>	
	EXIT	YES		
TIME	TIME DISPLAY	<ON>, <OFF>		
	SET YEAR			
	SET MONTH			
	SET DAY			
	SET HOUR			
	SET MINUTE			
	EXIT+SAVE			
SCHEDULE	SCHEDULE SW.	<ON>, <OFF>		
	SCHEDULE POINT	<01> ~ <32>		
	SCHEDULE HOUR			
	SCHEDULE MIN			
	SCHEDULE MODE	NONE		
		PRESET		
		SEQUENCE		
		AUTOPAN		
		CRUISE		
		IR FUNC.		
	NO FUNCTION PRESET POINT SEQUENCE LINE AUTOPAN LINE CRUISE LINE IR FUNCTION	 <1> ~ <256> <1> ~ <8> <1> ~ <4> <1> <AUTO>,<ON>		
	SCHEDULE RESET	YES		
	SCHEDULE EXIT			
EXIT OSD	YES			

<R/K Model>

Item	Layer 1		Layer 2	Layer 3	Note
DEFAULT CAMERA	<ON>, <OFF>				
BACKLIGHT	ON		BLC Level <000> ~ <100>		
	OFF				
FOCUS	AUTO		Focus Length <1cm>, <10cm>, <30cm> <1m>		
	MANUAL		<01> ~ <08>		
APERTURE	AUTO				
	MANUAL		H APERTURE <00> ~ <31>		
			V APERTURE <00> ~ <31>		
AE MODE	AUTO		IRIS OFFSET <00> ~ <99>		
	SHUTTER	NTSC	SHUTTER SPEED NTSC: <1/60> ~ <1/30000> PAL: <1/50> ~ <1/30000>		
		PAL	SHUTTER SPEED NTSC: <1/2> ~ <1/30000> PAL: <1/1.5> ~ <1/30000>		
	IRIS		IRIS <00> ~ <09>		
	AGC		AGC <00> ~ <05>		
WBC MODE	AUTO				
	MANUAL		R Gain <00> ~ <99>		
			B Gain <00> ~ <99>		
ID DISPLAY	<ON>, <OFF>				
SETUP MENU	FLIP		<IMAGE>(K model only), <M.E.>, <OFF>		
	ZOOM SPEED		<FAST>, <SLOW>		
	SPEED BY ZOOM		<ON>, <OFF>		
	AUTO CALI.		<ON>, <OFF>		
	DIGITAL ZOOM		<1> ~ <12>, <OFF>		
	SLOW SHUTTER (K model only)		<1/2> ~ <1/60> Sec. (NTSC) <1/1.5> ~ <1/50> Sec. (PAL)		
	ANGLE ADJUSTER		ADJUST MIN ANGLE		
			ADJUST MAX ANGLE		
			RESET		
	RESET		YES		
	EXIT				
TITLE DISPLAY	<ON>, <OFF>				
TITLE SETTING	<01> ~ <16>				
ALARM SETTNG	ALARM PIN		<1> ~ <8>		
	ALARM SWITCH		<ON>, <OFF>		
	ALARM TYPE		<N.O.>, <N.C.>		
	ALARM ACTION		PRESET		
			SEQUENCE		
			AUTOPAN		
			CRUISE		
	PRESET POINT SEQUENCE LINE AUTOPAN LINE CRUISE LINE		<001> ~ <256> <1> ~ <8> <1> ~ <4> <1>		
	DWELL TIME		<001> ~ <127> Sec., ALWAYS		
	EXIT		YES		
HOME SETTING	HOME FUNC.		<ON>, <OFF>		
	SELECT MODE		PRESET		
			SEQUENCE		
			AUTOPAN		
			CRUISE		
	PRESET POINT SEQUENCE LINE AUTOPAN LINE CRUISE LINE		<001> ~ <256> <1> ~ <8> <1> ~ <4> <1>		
	RETURN TIME		<001> ~ <128> Min.		
	GO		ENTER		
	EXIT		YES		
SEQUENCE	SEQUENCE LINE		<1> ~ <8>		
	SEQUENCE POINT		<01> ~ <32>		
	PRESET POS.		<001> ~ <255>, <END>		
	SPEED		<01> ~ <15>		
	DWELL TIME		<000> ~ <127> Sec.		
	RUN SEQUNECE		ENTER		
	EXIT				
AUTOPAN	AUTOPAN LINE		<1> ~ <4>		

Item	Layer 1	Layer 2	Layer 3	Note
	START POINT	<TO FIND>, <TO SAVE>		
	END POINT	<TO FIND>, <TO SAVE>		
	DIRECTION	<RIGHT>, <LEFT>		
	SPEED	<01> ~ <04>		
	RUN AUTOPAN	ENTER		
	EXIT			
CRUISE	RECORD START			
	RECORD END			
	RUN CRUISE			
	EXIT			
IR FUNCTION (K model only)	AUTO	THRESHOLD	<LOW>, <MID>, <HI>	
		IR COLOR	<B/W>, <COLOR>	
		EXIT		
	ON			
WDR SETTING (K model only)	WDR SWITCH	<ON>, <OFF>		
	WDR FUNCTION	AUTO		
		MANUAL	RATIO LEVEL <000>~<128>	
			SHUTTER LEVEL <000>~<128>	
			IRIS OFFSET <000>~<128>	
	EXIT			
PRIVACY (K model only)	PRIVACY SWITCH	<ON>, <OFF>		
	SHADE	<BLACK>, <WHITE>, <GRAY>		
	SET MASK	<1> ~ <8>	H CENTER <000> ~ <256>	
			V CENTER <000> ~ <256>	
			H SIZE <000> ~ <127>	
			V SIZE <000> ~ <127>	
	MASK CLEAR+RESET	<01> ~< 08>		
	MASK DSIPLAY	<FIRST>, <LAST>		
	EXIT	YES		
TIME	TIME DISPLAY	<ON>, <OFF>		
	SET YEAR			
	SET MONTH			
	SET DAY			
	SET HOUR			
	SET MINUTE			
	EXIT+SAVE			
SCHEDULE	SCHEDULE SWITCH	<ON>, <OFF>		
	SCHEDULE POINT	<01> ~ <32>		
	SCHEDULE HOUR			
	SCHEDULE MIN			
	SCHEDULE MODE	NONE		
		PRESET		
		SEQUENCE		
		AUTOPAN		
		CRUISE		
		IR FUNC.		
	NO FUNCTION PRESET SEQUENCE LINE AUTOPAN LINE CRUISE LINE IR FUNCTION	 <1> ~ <256> <1> ~ <8> <1> ~ <4> <1> <AUTO>, <ON>		
	SCHEDULE RESET			
	SCHEDULE EXIT			
EXIT OSD	YES			